

IN THE CLAIMS:

Please cancel originally-filed claims 1-10, and substitute claims 1-10 submitted pursuant to PCT Article 34, and add new claims 11-20 as provided below. The listing and status of these claims are provided as follows, on separate sheets:

Claims 1-10 (Cancelled).

11. (New) A press-forming device for press-forming at least one portion of a material according to at least one predetermined condition, comprising:

at least one arrangement of:

- a material characteristic input arrangement configured to provide at least first one characteristic from material characteristics comprising a thickness of the at least one portion of the material, a yield strength of the at least one portion of the material, about 0.2% proof stress, a tensile strength of the at least one portion of the material, an elongation of the at least one portion of the material, n value of the at least one portion of the material, r value of the at least one portion of the material, a stress-strain relation equation for the at least one portion of the material, a hardness of the at least one portion of the material, temperature, a surface roughness of the at least one portion of the material, a friction coefficient of the at least one portion of the material or a lubricant film thickness of the at least one portion of the material, or
- a material characteristic measurement arrangement configured to measure at least second characteristic of the material characteristics before the at least one portion of the material is form;

a state variable detector configured to measure at least one of state variables comprising a punch reaction, a metal mold temperature, a metal mold distortion amount, a work piece deformation amount or a work piece temperature during the formation of the at least one portion of the material;

a processing condition computer arrangement configured to determine at least one particular processing condition from at least one of a forming speed of the at least one portion of the material, a blank holding force or a metal mold temperature as a function of at least two of the at least one first characteristic, the at least one second characteristic or the at least one of the state variables; and

a processing condition controller configured to control the at least one processing condition from processing conditions comprising at least one of a punch movement speed, a die movement speed, a metal mold temperature or a blank holding force based on the at least one processing condition.

12. (New) The press-forming device according to claim 11, wherein the material characteristic input arrangement comprises at least one a manual input device, a bar code reader, an IC tag reader, a flexible disc or a photomagnetic disc reader.

13. (New) A press-forming method for press-forming at least one section of a material according to at least one predetermined forming condition, comprising:

at least one of:

- providing at least first one characteristic from material characteristics comprising a thickness of the at least one portion of the material, a yield strength of the at least one portion of the material, about 0.2% proof stress, a tensile strength of the at least one portion of the material, an elongation of the at least one portion of the material, n value of the at least one portion of the material, r value of the at least one portion of the material, a stress-strain relation equation for the at least one portion of the material, a hardness of the at least one portion of the material, temperature, a surface roughness of the at

least one portion of the material, a friction coefficient of the at least one portion of the material or a lubricant film thickness of the at least one portion of the material, or

- measuring at least second characteristic of the material characteristics before the at least one portion of the material is formed;

measuring at least one of state variables comprising a punch reaction, a metal mold temperature, a metal mold distortion amount, a work piece deformation amount or a work piece temperature during the formation of the at least one portion of the material;

determining at least one particular processing condition from at least one of a forming speed of the at least one portion of the material, a blank holding force or a metal mold temperature as a function of at least two of the at least one first characteristic, the at least one second characteristic or the at least one of the state variables; and

controlling the at least one processing condition from processing conditions comprising at least one of a punch movement speed, a die movement speed, a metal mold temperature or a blank holding force based on the at least one processing condition.

14. (New) The press-forming method according to claim 13, wherein the at least first one characteristic is provided using at least one of a manual input procedure, a bar code read procedure, an IC tag read procedure, a flexible disc read procedure or a photomagnetic disc read procedure.

15. (New) A press-forming method for press-forming at least one section of a material according to at least one predetermined forming condition, comprising:

measuring at least one variable from state variables which comprise a punch reaction, a metal mold temperature, a metal mold distortion amount, a work piece

deformation amount or a work piece temperature for every formation of the at least one section of the material;

comparing at least one variable with at least one previously-measured or previously-obtained one of the state variable to generate a comparison result;

determining at least one processing condition from at least one type a forming speed, a blank holding force, or a metal mold temperature using the comparison result; and

controlling at least one processing condition of processing conditions which comprise a punch movement speed, a die movement speed, a metal mold temperature or a blank holding force based on the at least one processing condition.

16. (New) The press-forming method according to claim 15, further comprising:

providing at least one characteristic from material characteristics comprising a thickness of the at least one portion of the material, a yield strength of the at least one portion of the material, about 0.2% proof stress, a tensile strength of the at least one portion of the material, an elongation of the at least one portion of the material, n value of the at least one portion of the material, r value of the at least one portion of the material, a stress-strain relation equation for the at least one portion of the material, a hardness of the at least one portion of the material, temperature, a surface roughness of the at least one portion of the material, a friction coefficient of the at least one portion of the material or a lubricant film thickness of the at least one portion of the material,

wherein the at least one processing condition is determined from the at least one characteristic and the at least one variable for every formation of the at least one portion measured for the at least one variable.

17. (New) The press-forming method according to claim 15, wherein the comparison result is obtained by comparing a difference between a past state variable and the at least one variable, a moving average value and a predetermined value within at least one of a predetermined time period or a predetermined number of repetitions.

18. (New) The press-forming method according to claim 16, wherein the comparison result is obtained by comparing a difference between a past state variable and the at least one variable, a moving average value and a predetermined value within at least one of a predetermined time period or a predetermined number of repetitions.

19. (New) A software arrangement which is capable configuring a processing arrangement to perform a press-forming procedure according to at least one predetermined forming condition, comprising:

a first set of instruction which, when executed by a processing arrangement, causes at least one of:

- provide at least first one characteristic from material characteristics comprising a thickness of the at least one portion of the material, a yield strength of the at least one portion of the material, about 0.2% proof stress, a tensile strength of the at least one portion of the material, an elongation of the at least one portion of the material, n value of the at least one portion of the material, r value of the at least one portion of the material, a stress-strain relation equation for the at least one portion of the material, a hardness of the at least one portion of the material, temperature, a surface roughness of the at least one portion of the material, a friction coefficient of the at least one portion of the material or a lubricant film thickness of the at least one portion of the material, or

- measuring at least second characteristic of the material characteristics before the at least one portion of the material is formed;

a second set of instruction which, when executed by the processing arrangement, cause a measurement of at least one of state variables comprising a punch reaction, a metal mold temperature, a metal mold distortion amount, a work piece deformation amount or a work piece temperature during the formation of the at least one portion of the material;

a third set of instruction which, when executed by the processing arrangement, cause a determination of at least one particular processing condition from at least one of a forming speed of the at least one portion of the material, a blank holding force or a metal mold temperature as a function of at least two of the at least one first characteristic, the at least one second characteristic or the at least one of the state variables; and

a fourth set of instruction which, when executed by the processing arrangement, cause a control of the at least one processing condition from processing conditions comprising at least one of a punch movement speed, a die movement speed, a metal mold temperature or a blank holding force based on the at least one processing condition.

20. (New) A computer accessible recording medium on which a program or software is provided, the program or software being accessible by a processing arrangement to cause a performance of a press-forming procedure according to at least one predetermined forming condition, wherein the program or software comprising:

a first set of instruction which, when executed by the processing arrangement, causes at least one of:

- provide at least first one characteristic from material characteristics comprising a thickness of the at least one portion of the material, a yield strength of the at least one portion of the material, about 0.2% proof stress, a tensile strength of the at least one portion of the material, an elongation of the at least one portion of the material, n value of the at least one portion of the material, r value of the at least one portion of the material, a stress-strain relation equation for the at least one portion of the material, a hardness of the at least one portion of the material, temperature, a surface roughness of the at least one portion of the material, a friction coefficient of the at least one portion of the material or a lubricant film thickness of the at least one portion of the material, or
- measuring at least second characteristic of the material characteristics before the at least one portion of the material is form;

a second set of instruction which, when executed by the processing arrangement, cause a measurement of at least one of state variables comprising a punch reaction, a metal mold temperature, a metal mold distortion amount, a work piece deformation amount or a work piece temperature during the formation of the at least one portion of the material;

a third set of instruction which, when executed by the processing arrangement, cause a determination of at least one particular processing condition from at least one of a forming speed of the at least one portion of the material, a blank holding force or a metal mold temperature as a function of at least two of the at least one first characteristic, the at least one second characteristic or the at least one of the state variables; and

a fourth set of instruction which, when executed by the processing arrangement, cause a control of the at least one processing condition from processing conditions

comprising at least one of a punch movement speed, a die movement speed, a metal mold temperature or a blank holding force based on the at least one processing condition.